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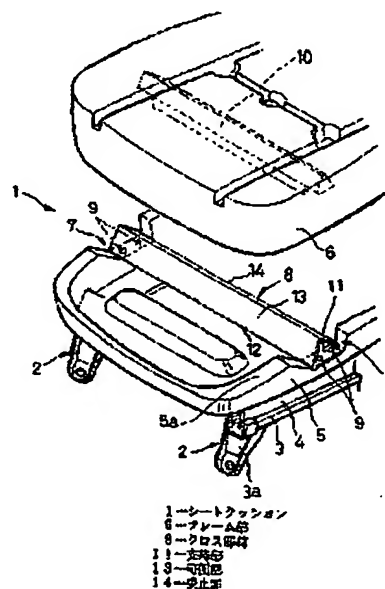
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(54) 【発明の名称】 自動車用シート

(57) 【要約】

【課題】 座り心地を悪化することなく自動車が急減速した場合に乗員が前方に移動するのを確実に抑制し、かつ簡単な構成にて軽量・安価に構成する。

【解決手段】 シートクッション1のフレーム部5の前後方向の中間部においてシートクッション1の横揺れ方向にクロス部材8をかけ渡し、クロス部材8には、下部の支持部11の側端から後上方に向けて延び、上方からの押圧力が作用すると下方に倒伏する可倒部13を設け、シートクッション1上に乗員が座ったときには可倒部13が倒伏して座り心地が悪化せず、また急減速時に乗員の尻部が前方に移動しようとする可倒部13がつっぱって乗員が前方に移動するのを確実に抑制できるようにした。



## 【特許請求の範囲】

【請求項1】 シートクッションのフレーム部の前後方向の中間部においてシートクッションの横幅方向にクロス部材をかけ渡し、クロス部材には、下部の支持部の前縁から後上方に向けて延び、上方からの押圧力が作用すると下方に倒伏する可倒部を設けたことを特徴とする自動車用シート。

【請求項2】 可倒部は、前後方向に延びるスリットによりシートクッションの横幅方向に複数に分割されていることを特徴とする請求項1記載の自動車用シート。

【請求項3】 可倒部の後縁部から後下方に向けて延びる受止部が延設されていることを特徴とする請求項1又は2記載の自動車用シート。

【請求項4】 支持部の後部に、受止部の下端部が所定位置より前方に移動するのを阻止するストッパ手段を設けたことを特徴とする請求項3記載の自動車用シート。

【請求項5】 可倒部を、所定以上の衝撃が作用したときに変形によって衝撃エネルギーを吸収するように構成したことを特徴とする請求項1～4の何れかに記載の自動車用シート。

## 【発明の詳細な説明】

【0001】

【発明の属する技術分野】本発明は自動車用シートに関する。特に自動車の急減速時に乗員の前方への移動を確実に阻止するようにした自動車用シートに関するものである。

【0002】

【従来の技術】従来、自動車が急減速した場合に、乗員が慣性によって前方に移動するのを防止するための手段としてシートベルトが設けられているが、乗員の尻部がシートクッションに沈み込みながら前方に移動するのに対して有効に作用しないことがあるという問題があった。図10を参照して説明すると、(a)に示すようにシート51に乗員50が正座して着座し、シートベルト52を装着した状態で前面衝突を受けた場合、慣性力により(b)に示すように乗員50の尻部が前方に移動し、さらに減速度が最大になったときには(c)に示すように乗員50の尻部がシートクッション51に沈み込みながらその前縁まで大きく移動してしまうことになる。

【0003】このように乗員50の尻部がシートクッション51の前方に移動するのを防止するために、図11に示すように、シートクッション51に、正規着座状態で乗員50の尻部の前部に位置するようにパイプなどのクロス部材53をシートクッション51の横幅方向にかけ渡し、延設し、衝撃を吸収し、前方移動を抑制することが提案されている。

【0004】ところが、シートクッション51の前部にパイプなどのクロス部材53を配設すると、乗員50の座り心地が悪くなり、ドライブの快適性を阻害するという問題があり、一方座り心地に影響しない位置までクロ

ス部材53の配置位置を下げると、乗員50の前方移動防止効果を得られなくなるという問題がある。

【0005】そこで、図12に示すように、通常は(a)のクロス部材53が低い位置に配設され、衝突時には(b)の如くインフレーター等の駆動手段54が作動して適直リンク機構などの駆動手段54を介してクロス部材53を上方に持ち上げるようにしたものが提案されている。この種の技術手段が、例えば特開平5-238297号公報や特開平7-81466号公報等に開示され、また特開平7-5898号公報には衝突時にシートクッション自体の前部を持ち上げるようにしたものが開示されている。

【0006】また、特開平4-119229号公報には、クッションフレームに、複数の山形の細線状の規制部材をシートクッションの横幅方向に所定間隔で並列して配設し、その上を所定厚みのフェルトで覆って上記クロス部材に相当する機能を奏するようにしたものが開示されている。

【0007】

【発明が解決しようとする課題】ところが、図12に示した構成や上記各公報に開示された構成では、クロス部材53を所要時に強制的に持ち上げるための機構やその駆動手段54、55などが必要であるため、装置が複雑となってコスト高になるとともに、重量面でも重くなるという問題がある。

【0008】また、上記特開平4-119229号公報に開示された構成では、上方に突出する山形形状の規制部材の両端が固定されているため、乗員がシートクッション上に着座することによって上方からの押圧力が作用したときに、規制部材が弾性的に捻んだとしてもそのたわみ量は小さく、異物感が強くて座り心地が悪いという問題があり、また複数の規制部材をフレームに溶接しているため、製造工数が多くなり、コスト高になるという問題がある。

【0009】本発明は、上記従来の問題点に鑑み、座り心地を悪化することなく自動車が急減速した場合に乗員が前方に移動するのを確実に抑制でき、かつ構成が簡単で軽量・安価に構成できる自動車用シートを提供することを目的とする。

【0010】

【課題を解決するための手段】本発明の自動車用シートは、シートクッションのフレーム部の前後方向の中間部においてシートクッションの横幅方向にクロス部材をかけ渡し、クロス部材には、下部の支持部の前縁から後上方に向けて延び、上方からの押圧力が作用すると下方に倒伏する可倒部を設けたものであり、シートクッション上に乗員が着座したときには上方から押圧力が作用して可倒部が下方に倒伏することにより座り心地が悪化することではなく、かつ急減速時に乗員の尻部が前方に移動しようとする、尻部が可倒部の後縁部に当たって受け止

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められ、乗員が前方に移動するのを確実に抑制でき、また押し上げ機構や駆動手段を別に設けていないので構成が簡単で軽量・安価に構成できる。

【0011】また、可倒部が前後方向に延びるスリットによりシートクッションの横幅方向に複数に分割されていると、可倒部が単位毎に円滑に倒伏できるため、乗員が着座したときに乗員の大腿部へのフィット感が向上する。

【0012】また、可倒部の後端部から後下方に向けて延びる受止部が延設されていると、急減速時に前方に移動しようとする乗員の尻部が受止部に面して受け止められるので、尻部の前方移動を安定的に抑制できる。

【0013】また、支持部の後部に、受止部の下端部が所定位置より前方に移動するのを阻止するストップ手段を設けると、受止部による尻部の受け止め作用がさらに安定し、尻部の前方移動を一層安定的に抑制できる。

【0014】また、可倒部を、所定以上の衝撃が作用したときに変形によって衝撃エネルギーを吸収するように構成すると、尻部の前方移動を阻止しながら、尻部に対する衝撃を緩和することができる。

【0015】

【発明の実施の形態】以下、本発明の自動車用シートの一実施形態について、図1～図3を参照して説明する。

【0016】図1、図2において、1は自動車用シートのシートクッションで、左右両側のシートレール2にて前後位置を調整可能に構成されている。シートレール2は、前後両端の取付部3aが直体のフロアに固定されたロアレール3に対してアッパレール4が移動及び任意位置で固定可能に装着されている。5は、左右のシートレール2のアッパレール4に両側下面が固定支持されたシートクッション1の鋼板製のフレーム部で、その上部に発泡ウレタンなどのクッションパッド6が装着される。フレーム部5の外周部には上方に膨出成形された周壁部5aが設けられ、クッションパッド6はその内外周面に嵌合するように形成されている。なお、クッションパッド6の外周面は外装材（図示せず）にて被覆され、その周縁部がフレーム部5の周壁下縁に固定具（図示せず）にて固着される。

【0017】フレーム部5の前後方向の中間部の前方寄りの位置において、その両側の周壁部5a上面に凹部7が形成され、この凹部7、7'間に、シートクッション1の横幅方向に延びるクロス部材8がかけ渡され、その両端部がリベット9やボルト、若しくは溶接等にて凹部7、7'の上面に固着されている。また、クッションパッド6の下面のクロス部材8に対応する位置には、このクロス部材8を下方から収容配置する凹部11が形成されている。

【0018】クロス部材8は、図2、図3に示すように、両端部がフレーム部5の凹部7に固定された支持部11と、支持部11の前縁から屈折ヒンジ12を介して

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後上方に向けて延出された可倒部13と、可倒部13の後端部から後下方に向けて延出された受止部14を備え、図3(a)に示すように、上方から白抜き矢印の如く押圧力が作用すると、可倒部13が実線状態から破線で示すように倒伏し、図3(b)に示すように、後方から斜め下方前方に向けて白抜き矢印の如く押圧力が作用した場合には可倒部13は倒伏せずにその姿勢を維持することによって押圧力が支持部11に伝達されて支持されるように構成されている。

10 【0019】クロス部材8の材質としては、ばね鋼を用いるのが好ましいが、普通鋼板や合成樹脂材料を用いることもできる。また、フレーム部5の周壁部5aに凹部7を形成してその上面にクロス部材8の両端部を固着するのではなく、凹部7を形成せずにクロス部材8の両端を周壁部5aの縦壁に直接溶接したり、締結固定するようにしてもよい。

【0020】以上の構成によれば、自動車用シートのシートクッション1上に、図2に示すように、乗員20が座ったときや乗員がペダル操作した時には、クッションパッド6に面圧が加わって圧縮されながら下方に変位するが、その際には図3(a)に示すように、クロス部材8の可倒部13が容易に下方に倒伏するので、クロス部材8によって違和感を感じたり、座り心地が悪化するようなことはない。

【0021】一方、自動車が衝突して急減速が発生した時には、乗員の尻部が前方に移動しようすると、図3(b)に示すように、可倒部13をその板面方向にはば沿って後方から押圧することになるため、可倒部13は倒伏せずに押圧力が支持部11に伝達されてフレーム部5で確実に受け止められ、尻部の前方移動が抑制される。その際、可倒部13の後端に受止部14が延設されているので、急減速時に前方に移動しようとする乗員20の尻部が受止部14によって面で安定的に受け止められ、尻部の前方移動が確実に抑制される。さらに、過大な衝撃荷重が作用した場合には、クロス部材8の全体が潰れたり、くの字形に変形することにより、乗員20の前方への移動エネルギーが吸収され、より安全に前方移動量が抑制される。

【0022】なお、乗員20がシートクッション1上に着座した状態では、可倒部13が倒伏した状態になっているが、前面衝突時には、車体のダッシュパネルが車室内側に侵入して乗員20の大腿部が上方に持ち上げられることによって可倒部13が元の位置に復帰することにより、上記のように乗員20が前方に移動するのを確実に抑制される。

【0023】また、フレーム部5にクロス部材8を設けるだけの簡単な構成で済み、急減速時に作用させる押し上げ機構や駆動手段を別に設ける必要がないので構成が簡単で軽量・安価に構成できる。

【0024】以下、本実施形態の各種変形例について、

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図4～図9を参照して説明する。

【0025】図1～図3の例では、可倒部13及び受止部14がクロス部材8の長手方向に一体的な1枚の板状のものを例示したが、図4に示すように、前後方向に延びるスリット21によりクロス部材8の長手方向に複数分割した状態に形成してもよい。このように可倒部13をクロス部材8の長手方向に複数に分割すると、可倒部13が部位毎に円滑に倒伏できるため、乗員20が着座したときに乗員20の大腿部へのフィット感が向上し、座り心地が良くなる。

【0026】また、図5に示すように、分割形成された可倒部13及び受止部14の間のスリット21を幅広に形成し、そのスリット21内に可倒部13及び受止部14と側面視で略同一形状の山形支持片22を支持部11の後端縁から突出形成してもよい。こうすると、乗員20が着座したときに可倒部13及び受止部14と山形支持片22が前後両側から対称に倒伏するため、支持部11に均しり荷重が作用せず、支持部11のわじれによって尻部の前方移動抑制作用が低下することがなく、長期にわたって安定した作用が得られる。

【0027】また、図6に示すように、可倒部13にその板面方向に所定以上の荷重が作用した時に変形して衝撃エネルギーを吸収する衝撃吸収手段としての屈曲部23を設け、可倒部13の変形によって衝撃エネルギーを吸収するように構成することもできる。こうすると、急減速時に乗員20の尻部の前方移動を阻止しながら、尻部に対して作用する衝撃を緩和することができる。勿論、衝撃を吸収するための構成としては、可倒部13に屈曲部23を形成するだけでなく、可倒部13に穴をあけたり、屈折ヒンジ12が弾性変形しながら前方にスライドするような構成としてもよい。

【0028】また、図7(a)に示すように、支持部11の後部に、後向きに倒立し字状のストッパ片24を切り起こし形成し、受止部14の下端から前方に向けてこのストッパ片24に係合可能な係合片25を突設して受止部14のストッパ手段を設けることもできる。こうすると、乗員20の着座時には、図7(b)に示すように、可倒部13が倒伏する動作に影響はなく、急減速時には、図7(c)に示すように、前方に移動しようとする乗員20の尻部が受止部14によって面で受け止められ、受止部14が前方に移動すると、係合片25がストッパ片24に係合してそれ以上の前方移動が確実に阻止されるので、受止部14により尻部がさらに安定して受け止められ、尻部の前方移動を一層安定的に抑制できる。

【0029】また、ストッパ手段としては、支持部11にストッパ片24を設けず、図8に示すように、支持部11の後端から当り片26を起立形成し、受止部14の下端を支持部11の後端より下方に突出してその下端から前方に係合片27を突設した構成とすることもできる。

この場合も図7の場合と同様の作用が得られるとともに、当り片26によって支持部11の剛性を高くすることができ、かつ受止部14の下端部と当り片26の係合が確実に行われるので、さらに安定した作用が得られる。

【0030】さらに、図9に示すように、クロス部材8を支持部11とそれとは別体の合成樹脂製の作用板材30にて構成してもよい。図9において、支持部11には前縁縁と後端縁から受け脚15が起立形成されている。

作用板材30は、図9(a)、(b)に示すように、支持部11上で受け脚15、15間に嵌着される接着板部31と、薄肉に成形して構成された樹脂ヒンジ32を介して接着板部31に接続された可倒板部33と、この可倒板部33に樹脂ヒンジ35を介して接続された受止板部34と、受止板部34の先端部に屈曲形成された係合部36にて構成されている。この作用板材30の成形後の自然状態は、その樹脂ヒンジ32、35の弾性力によって図9(b)に示すように略平板状であり、図9(a)に示すように組み付ける際には、樹脂ヒンジ32をその弾性に抗して折り曲げて接着板部31を支持部11に接着し、さらに樹脂ヒンジ35を折り曲げた状態で、フレーム部5にクッションパッド6を設置してその凹陥部10内に収納配置することによって、組み付けることができる。

【0031】このような構成によれば、機能的には図8と同様の作用が得られ、かつ支持強度及び剛性は鋼板製の支持部11にて確実にかつ容易に得ることができるとともに、機能的部品である作用板材30は、略平板状で簡単な形状の合成樹脂形成品から成るので、容易に低コストにて製作することができる。

【0032】なお、上記実施形態では、クロス部材8をフレーム部5と別部材として構成し、リベット9やボルトや溶接等で固着した例を示したが、クロス部材8の全部、又は図9の例のような場合にはその一部である支持部11をフレーム部5と一体成形した構成とすることもできる。

【0033】

【発明の効果】本発明の自動車用シートによれば、以上のようにシートクッションのフレーム部の前後方向の中間部においてシートクッションの横幅方向にクロス部材をかけ渡し、クロス部材には、下部の支持部の前縁から後上方に向けて延び、上方からの押圧力が作用すると下方に倒伏する可倒部を設けたので、シートクッション上に乗員が着座したときには上方から押圧力が作用して可倒部が下方に倒伏することにより座り心地が悪化するのではなく、かつ急減速時に乗員の尻部が前方に移動しようとする、尻部が可倒部の後端部に当たって受け止められ、乗員が前方に移動するのを確実に抑制でき、また押し上げ機構や駆動手段を別に設けていないので構成が簡単で、容易に構成できる。

【0034】また、可倒部が前後方向に延びるスリットによりシートクッションの横断方向に複数に分割されていると、可倒部が部位毎に円滑に倒伏できるため、乗員が着座したときに乗員の大腿部へのフィット感が向上する。

【0035】また、可倒部の後端部から後下方に向けて延びる受止部が延設されていると、急減速時に前方に移動しようとする乗員の尻部が受止部にて面で受け止められるので、尻部の前方移動を安定的に抑制できる。

【0036】また、支持部の後部に、受止部の下端部が所定位置より前方に移動するのを阻止するストップ手段を設けると、受止部による尻部の受け止め作用がさらに安定し、尻部の前方移動を一層安定的に抑制できる。

【0037】また、可倒部を、所定以上の衝撃が作用したときに変形によって衝撃エネルギーを吸収するように構成すると、尻部の前方移動を阻止しながら、尻部に対する衝撃を緩和することができる。

【図面の簡単な説明】

【図1】本発明の自動車用シートの一実施形態の分解斜視図である。

【図2】同実施形態の縦断側面図である。

【図3】同実施形態のクロス部材を示し、(a)は着座時の作用説明図、(b)は急減速時の作用説明図である。

【図4】同実施形態のクロス部材の第1の変形例の部分斜視図である。

【図5】同実施形態のクロス部材の第2の変形例の部分斜視図である。

\*

\*【図6】同実施形態のクロス部材の第3の変形例の部分斜視図である。

【図7】同実施形態のクロス部材の第4の変形例を示し、(a)は設置状態の縦断面図、(b)は着座時の状態の縦断面図、(c)は急減速時の状態の縦断面図である。

【図8】同実施形態のクロス部材の第5の変形例の縦断面図である。

【図9】同実施形態のクロス部材の第6の変形例を示し、(a)は設置状態の縦断面図、(b)はたわみ板の屈曲状態の断面図である。

【図10】自動車用シートにおける急減速時の乗員の挙動の説明図である。

【図11】急減速時の乗員の前方移動を防止する手段の説明図である。

【図12】従来例の急減速時の乗員の前方移動を防止する手段を設けた自動車用シートの動作説明図である。

【符号の説明】

1 シートクッション

5 フレーム部

8 クロス部材

11 支持部

13 可倒部

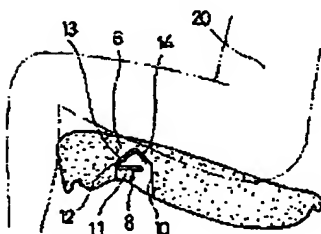
14 受止部

21 スリット

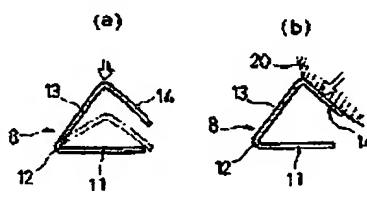
23 屈曲部(衝撃吸収手段)

24 ストップ片(ストップ手段)

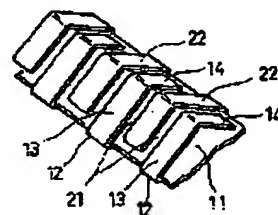
【図2】



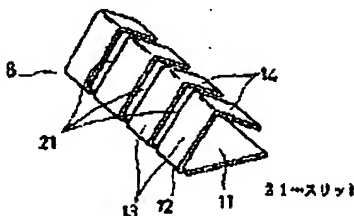
【図3】



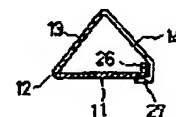
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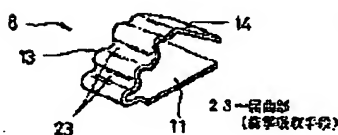
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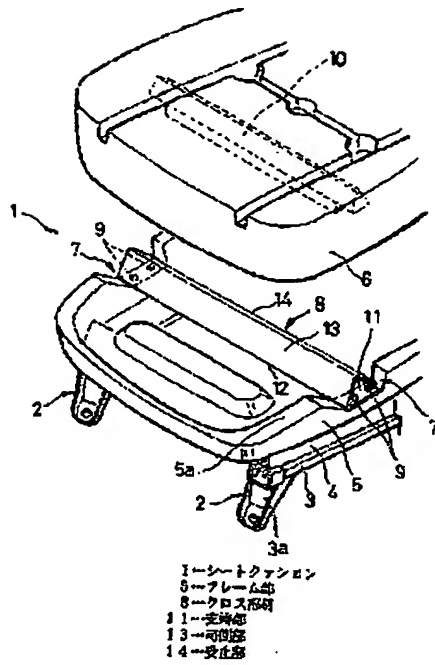
【図8】



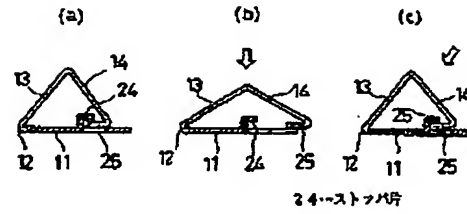
【図6】



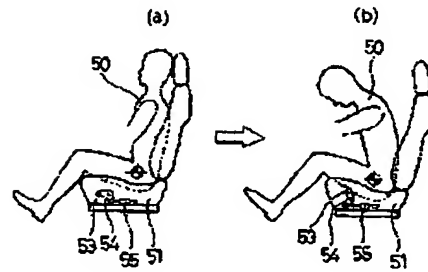
【図1】



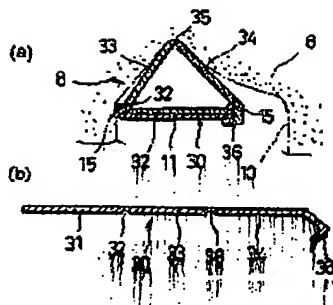
【図7】



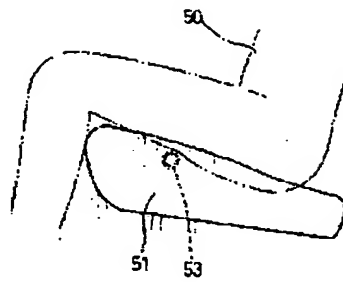
【図12】



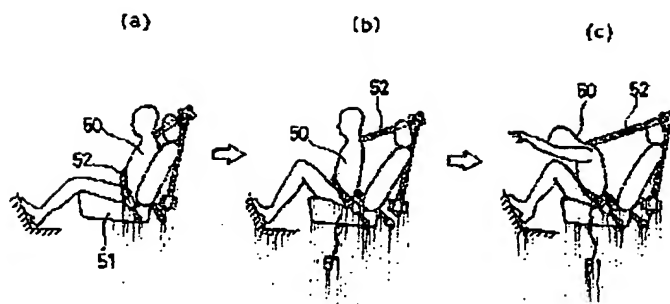
【図9】



【図11】



【図10】





## PATENT ABSTRACTS OF JAPAN

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(51)Int. CI.

B60N 2/42

(21)Application number : 2000-232098 (71)Applicant : DAIHATSU MOTOR CO LTD

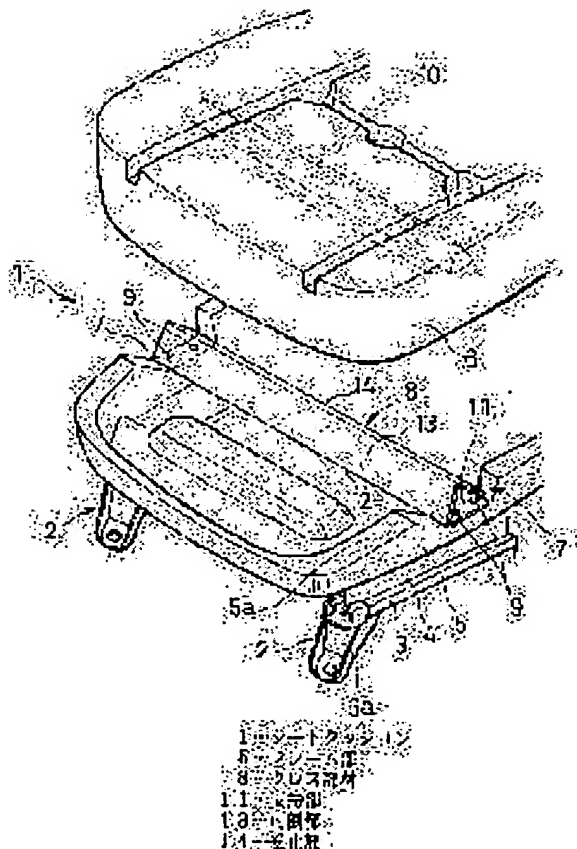
(22)Date of filing : 31.07.2000 (72)Inventor : TAOKA YOSHIBUMI

## (54) AUTOMOBILE SEAT

## (57)Abstract:

PROBLEM TO BE SOLVED: To reliably suppress movement of a passenger to the front when an automobile is rapidly decelerated without worsening a riding sensation and to reduce weight and a cost through simple constitution.

SOLUTION: A cross member 8 spans in the direction of the lateral width of a seat cushion 1 at the intermediate part in a longitudinal direction of a frame part 5 of the seat cushion. A falling part 13 is provided to fall down to below when a press force from above is exerted. When a passenger seat on the seat cushion 1, the falling part 13 falls down, a riding sensation is not worsened, and when, during rapid deceleration, the hip of the passenger is about to move to a front, with the falling part 13 stretching, movement of the passenger to a front can be reliably suppressed.



## LEGAL STATUS

[Date of request for examination]

[Date of sending the examiner's  
decision of rejection]

[Kind of final disposal of application  
other than the examiner's decision of  
rejection or application converted  
registration]

[Date of final disposal for  
application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's  
decision of rejection]

[Date of requesting appeal against  
examiner's decision of rejection]

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Bibliography

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- (43) [Date of Publication] February 12, Heisei 14 (2002. 2.12)
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- (51) [The 7th edition of International Patent Classification]

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[Request for Examination] Un-asking.

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(71) [Applicant]

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[Address] 2-1-1, Momozono, Ikeda-shi, Osaka A Daihatsu Motor stock meeting in the company

(74) [Attorney]  
[Identification Number] 100080827  
[Patent Attorney]  
[Name] Ishihara \*\*  
[Theme code (reference)]

3B087

[F term (reference)]

3B087 CD03 CD04

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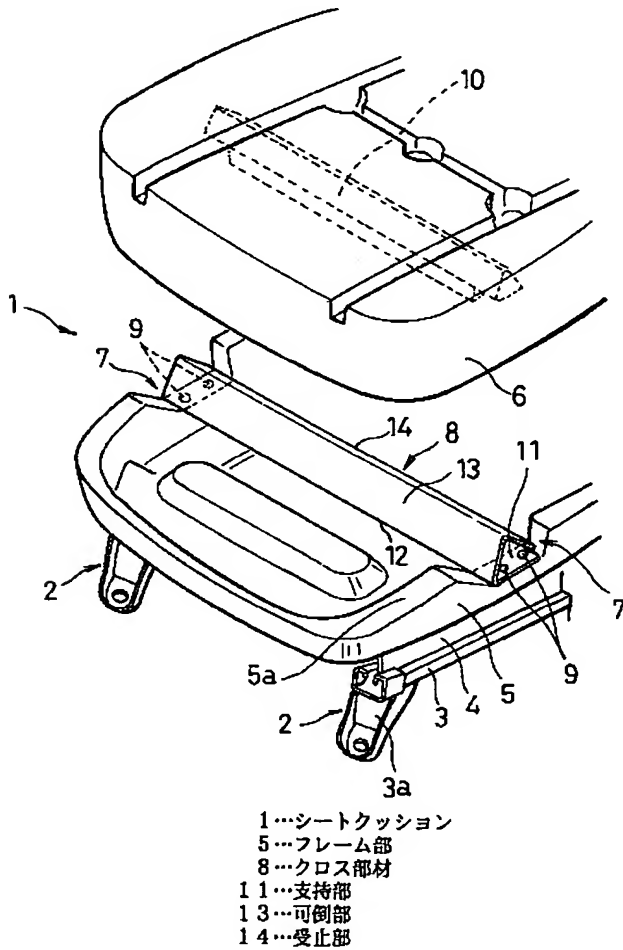
(57) [Abstract]

[Technical problem] When an automobile carries out a sudden slowdown, without getting worse comfortableness, it controls certainly that crew moves ahead, and constitutes from an easy configuration lightweight and cheaply.

[Means for Solution] In the pars intermedia of the cross direction of the frame section 5 of a seat cushion 1, the cross member 8 is applied in the breadth direction of a seat cushion 1, and it is in delivery and the cross member 8, When it extended towards the backward upper part from the front end of the lower supporter 11, and the thrust from the upper part acted, the collapse section 13 which lodges caudad was formed, crew sat down on a seat cushion 1,

the collapse section 13 lodged, and comfortableness did not get worse and crew's bottom part tended to move ahead at the time of a sudden slowdown, it enabled it to control certainly that the collapse section 13 is stubborn and crew moves ahead.

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## CLAIMS

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[Claim(s)]

[Claim 1] The sheet for automobiles characterized by preparing the collapse section which will lodge caudad if a cross member is applied in the breadth direction of a seat cushion in the pars intermedia of the cross direction of the frame section of a seat cushion, it extends towards the backward upper part in delivery and a cross member from the front end of a lower supporter and the thrust from the upper part acts.

[Claim 2] The collapse section is a sheet for automobiles according to claim 1 characterized by being divided in the breadth direction of a seat cushion at plurality by the slit prolonged in a cross direction.

[Claim 3] The sheet for automobiles according to claim 1 or 2 characterized by installing the receiver which turns caudad and is prolonged the back from the back end section of the collapse section.

[Claim 4] The sheet for automobiles according to claim 3 characterized by forming a stopper means to prevent that the soffit section of a receiver moves ahead from a predetermined location in the back of a supporter.

[Claim 5] The sheet for automobiles given in any of claims 1-4 characterized by constituting so that striking energy may be absorbed according to deformation, when the impact more than predetermined acts the collapse section they are.

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## DETAILED DESCRIPTION

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[Detailed Description of the Invention]

[0001]

[Field of the Invention] Especially this invention relates to the sheet for automobiles which prevented migration to crew's front certainly at the time of a sudden slowdown of an automobile about the sheet for automobiles.

[0002]

[Description of the Prior Art] When an automobile carried out a sudden slowdown conventionally, the seat belt was prepared as a means for preventing that crew moves ahead according to inertia, but while crew's bottom part sank in the seat cushion, there was a problem that it might not act effectively to moving ahead. If it explains with reference to drawing 10 , as shown in (a), crew 50 will sit down on a sheet 51 at normal. In the condition of having equipped with the seat belt 52, a carrier beam case, with an inertia force, as shown in (b), crew's 50 bottom part moves a front collision ahead. While crew's 50 bottom part sinks in a seat cushion 51 as shown in (c) when deceleration furthermore becomes max, it will move greatly to the front end.

[0003] Thus, in order to prevent that crew's 50 bottom part moves ahead of a seat cushion 51, as shown in drawing 11 , applying, passing and arranging the cross members 53, such as a pipe, in the breadth direction of a seat cushion 51 so that it may be located in the anterior part of crew's 50 bottom part in the state of normal taking a seat, absorbing an impact to a seat cushion 51, and controlling front migration to it is proposed.

[0004] However, when the cross members 53, such as a pipe, are arranged in the anterior part of a seat cushion 51, crew's 50 comfortableness worsens, there is a problem of checking the amenity of a drive, and when the arrangement location of the cross member 53 is lowered to the location which does not influence comfortableness on the other hand, there is a problem that crew's 50 front migration prevention effectiveness is no longer acquired.

[0005] Then, as shown in drawing 12 , the cross member 53 of (a) is usually arranged in a low location, and what the driving means 55, such as an inflator, operate at the time of a collision as shown in (b), and raised the cross member 53 up through the interlocking means 54, such as a link mechanism, suitably is proposed. This kind of technical means is indicated by JP, 5-238297, A, JP, 7-81466, A, etc., and what raised the anterior part of the seat cushion itself at the time of a collision is indicated by JP, 7-5898, U.

[0006] Moreover, the specification-part material of the shape of a thin line of

two or more Yamagata is arranged in parallel in the breadth direction of a seat cushion at intervals of predetermined, and is arranged in it at a cushion frame, and what did so the function which covers a it top with the given thickness Mino felt, and is equivalent to the above-mentioned cross member is indicated by JP,4-119229,U.

[0007]

[Problem(s) to be Solved by the Invention] However, with the configuration shown in drawing 12 , or the configuration indicated by each above-mentioned official report, since the device for raising the cross member 53 compulsorily at the time of necessary, its driving means 54 and 55, etc. are required, while equipment becomes complicated and becomes cost high, there is a problem of becoming heavy also in respect of weight.

[0008] moreover, with the configuration indicated by above-mentioned JP,4-119229,U Since the ends of the specification-part material of the Yamagata configuration which projects up are being fixed, when crew sits down on a seat cushion and the thrust from the upper part acts Though specification-part material bends elastically, since the amount of deflections is small, and there is a problem that foreign body sensation is strong and it is uncomfortable and two or more specification-part material is welded to the frame, manufacture manday increases and there is a problem of becoming cost high.

[0009] It can control certainly that crew moves it ahead when an automobile carries out the sudden slowdown of this invention in view of the above-mentioned conventional trouble, without getting worse comfortableness, and a configuration aims at offering the sheet for automobiles which can be constituted simply, lightweight, and cheaply.

[0010]

[Means for Solving the Problem] The sheet for automobiles of this invention applies a cross member in the breadth direction of a seat cushion in the pars intermedia of the cross direction of the frame section of a seat cushion. To delivery and a cross member The collapse section which will lodge caudad if it extends towards the backward upper part from the front end of a lower supporter and the thrust from the upper part acts is prepared. If comfortableness does not get worse and crew's bottom part tends to move ahead at the time of a sudden slowdown when crew sits down on a seat cushion, thrust acts from the upper part and the collapse section lodges caudad Since a bottom part is caught in the back end section of the collapse section, and it can control certainly that crew moves ahead, and it pushes up and neither the device nor the driving means is established independently, it can constitute simply [ a configuration ], lightweight, and cheaply.



[0011] Moreover, if the collapse section is divided in the breadth direction of a seat cushion by the slit prolonged in a cross direction at plurality, since the collapse section can lodge smoothly for every part, when crew sits down, a feeling of a fit to crew's femoral region improves.

[0012] Moreover, if the receiver which turns caudad and is prolonged the back from the back end section of the collapse section is installed, since the bottom part of the crew who is going to move ahead at the time of a sudden slowdown will be caught in a receiver in a field, front migration of a bottom part can be controlled stably.

[0013] Moreover, if the soffit section of a receiver forms a stopper means to prevent moving ahead from a predetermined location in the back of a supporter, the bottom part by the receiver catches, and an operation is stabilized further and can control front migration of a bottom part much more stably.

[0014] Moreover, if it constitutes so that striking energy may be absorbed according to deformation when the impact more than predetermined acts the collapse section, the impact over a bottom part can be eased, preventing front migration of a bottom part.

[0015]

[Embodiment of the Invention] Hereafter, 1 operation gestalt of the sheet for automobiles of this invention is explained with reference to drawing 1 - drawing 3 .

[0016] In drawing 1 and drawing 2 , 1 is the seat cushion of the sheet for automobiles, and consists of seat rails 2 of right-and-left both sides possible [ adjustment of an order location ]. As for the seat rail 2, it is equipped with the upper rail 4 possible [ immobilization ] in sliding and an arbitration location to the lower rail 3 by which mounting section 3a of order ends was fixed to the floor of a car body. 5 is the frame section made from the steel plate of the seat cushion 1 with which fixed support of the both-sides underside was carried out at the upper rail 4 of the seat rail 2 on either side, and the upper part is equipped with the cushion pads 6, such as urethane foam. Circumferential bank 5a by which swelling shaping was carried out is prepared in the upper part at the periphery section of the frame section 5, and the cushion pad 6 is formed so that it may fit into the inside-and-outside peripheral surface. In addition, the outside surface of a cushion pad 6 is covered with a sheathing material (not shown), and the periphery section fixes it with a fastener (not shown) at the circumferential Kabeshita edge of the frame section 5.

[0017] In the location of the front approach of the pars intermedia of the cross direction of the frame section 5, the crevice 7 was formed in the

circumferential bank 5a top face of those both sides, the cross member 8 prolonged in the breadth direction of a seat cushion 1 between this crevice 7 and 7 applied, and was passed, and those both ends have fixed on the top face of crevices 7 and 7 by the rivet 9, a bolt or welding, etc. Moreover, the cavity 10 which carries out hold arrangement of this cross member 8 from a lower part is formed in the location corresponding to the cross member 8 of the underside of a cushion pad 6.

[0018] The supporter 11 with which both ends were fixed to the crevice 7 of the frame section 5 as the cross member 8 was shown in drawing 2 and drawing 3, As it has the receiver 14 which turned caudad and extended the back from the collapse section 13 which extended towards the backward upper part through the refraction hinge 12 from the front end of a supporter 11, and the back end section of the collapse section 13 and is shown in drawing 3 (a) When thrust acts like a void arrow head from the upper part, as it lodges as the collapse section 13 shows with a broken line from a continuous-line condition and is shown in drawing 3 (b) When thrust acts like a void arrow head towards the slanting lower part front from back, the collapse section 13 is constituted by maintaining the position, without lodging so that thrust may be transmitted to a supporter 11 and may be supported.

[0019] Although it is desirable as construction material of the cross member 8 to use spring steel, a steel plate and a synthetic-resin ingredient can also usually be used. Moreover, a crevice 7 is formed in circumferential bank 5a of the frame section 5, and the both ends of the cross member 8 are not fixed on the top face, but the ends of the cross member 8 may be directly welded to the wall of circumferential bank 5a, without forming a crevice 7, or it may be made to carry out conclusion immobilization.

[0020] According to the above configuration, as shown on the seat cushion 1 of the sheet for automobiles at drawing 2, when the time of crew 20 sitting down and crew do pedal actuation, while planar pressure is added and compressed into a cushion pad 6, displace caudad, but Comfortableness seems not to sense sense of incongruity by the cross member 8, or not to get worse, since the collapse section 13 of the cross member 8 lodges caudad easily as shown in drawing 3 (a) in that case.

[0021] Since the collapse section 13 will be pressed from back almost along the direction of a plate surface on the other hand as shown in drawing 3 (b) when an automobile carries out the protrusion, a sudden slowdown occurs, and crew's bottom part tends to move ahead, thrust is transmitted to a supporter 11, without lodging, the collapse section 13 is certainly caught in the frame section 5, and front migration of a bottom part is controlled. Since receivers

14 are formed successively by the back end of the collapse section 13 in that case, the bottom part of the crew 20 who is going to move ahead at the time of a sudden slowdown is stably caught by the receiver 14 in a field, and front migration of a bottom part is controlled certainly. Furthermore, when an excessive impact load acts, by crushing the whole cross member 8 or deforming into the typeface of \*\*, the migration energy ahead of crew 20 is absorbed, and front movement magnitude is controlled more by insurance.

[0022] In addition, after crew 20 has sat down on a seat cushion 1, it will be lodged by the collapse section 13, but at the time of a front collision, by the dash panel of a car body invading into a vehicle interior-of-a-room side, and raising crew's 20 femoral region up, when the collapse section 13 returns to the original location, it is controlled certainly that crew 20 moves ahead as mentioned above.

[0023] moreover, it ends with the easy configuration which forms the cross member 8 in the frame section 5, and is made to act at the time of a sudden slowdown -- since it is necessary to push up and to establish neither a device nor a driving means independently, it can constitute simply [ a configuration ], lightweight, and cheaply.

[0024] Hereafter, the various modifications of this operation gestalt are explained with reference to drawing 4 - drawing 9 .

[0025] Although the collapse section 13 and a receiver 14 illustrated what [ a thing / one ] of one sheet tabular to the longitudinal direction of the cross member 8 in the example of drawing 1 - drawing 3 , as shown in drawing 4 , you may form in the condition that the slit 21 prolonged in a cross direction divided more than one into the longitudinal direction of the cross member 8. Thus, if the collapse section 13 is divided into the longitudinal direction of the cross member 8 at plurality, since the collapse section 13 can lodge smoothly for every part, when crew 20 sits down, a feeling of a fit to crew's 20 femoral region improves, and comfortableness becomes good.

[0026] Moreover, as shown in drawing 5 , the slit 21 between the collapse section 13 by which division formation was carried out, and a receiver 14 may be formed broadly, and projection formation of the Yamagata support piece 22 of an abbreviation same configuration may be carried out from the back end edge of a supporter 11 by the collapse section 13 and the receiver 14, and side view into the slit 21. Since the collapse section 13 and a receiver 14, and the Yamagata support piece 22 will lodge from order both sides to the symmetry when crew 20 sits down if it carries out like this, it twists to a supporter 11, and a load does not act, but the operation which the front migration depressant action of a bottom part did not fall by torsion of a supporter 11, and was

stabilized over the long period of time is acquired.

[0027] Moreover, the flection 23 as an impact-absorbing means to deform when the load more than predetermined acts on the collapse section 13 in the direction of a plate surface, as shown in drawing 6 , and to absorb striking energy can be formed, and it can also constitute so that striking energy may be absorbed according to deformation of the collapse section 13. If it carries out like this, the impact which acts to a bottom part can be eased preventing front migration of crew's 20 bottom part at the time of a sudden slowdown. Of course, as a configuration for absorbing an impact, while a hole is made in the collapse section 13 it not only forms a flection 23 in the collapse section 13, but or the refraction hinge 12 carries out elastic deformation, it is good also as a configuration which is slid ahead.

[0028] Moreover, as shown in drawing 7 (a), the stopper piece 24 of the backward letter of the handstand of L characters can be cut, lifting formation can be carried out, the engagement piece 25 which can engage with this stopper piece 24 can be protruded on the back of a supporter 11 towards the front from the soffit of a receiver 14, and the stopper means of a receiver 14 can also be formed in it. If it carries out like this, as shown in drawing 7 (b) at the time of taking a seat of crew 20, are uninfluential in the actuation in which the collapse section 13 lodges. At the time of a sudden slowdown If the bottom part of the crew 20 who is going to move ahead is caught by the receiver 14 in a field and a receiver 14 moves ahead as shown in drawing 7 (c) Since the engagement piece 25 engages with the stopper piece 24 and the front migration beyond it is prevented certainly, a bottom part is further stabilized by the receiver 14, it is caught, and front migration of a bottom part can be controlled much more stably.

[0029] Moreover, as the stopper piece 24 is not formed in a supporter 11 but it is shown in drawing 8 as a stopper means It can hit from the back end of a supporter 11, standing-up formation of the piece 26 can be carried out, and it can also consider as the configuration which extended the soffit of a receiver 14 caudad from the back end of a supporter 11, and protruded the engagement piece 27 ahead from the soffit. Since rigidity of a supporter 11 can be made high by the hit piece 26, and it hits with the soffit section of a receiver 14 and engagement of a piece 26 is ensured while the same operation as the case of drawing 7 is acquired also in this case, the operation stabilized further is acquired.

[0030] Furthermore, as shown in drawing 9 , a supporter 11 and it may constitute the cross member 8 from an operation plate 30 made of the synthetic resin of another object. In drawing 9 , it receives in a supporter 11 from a

front end edge and a back end edge, and standing-up formation of the collar 15 is carried out. With wearing Itabe 31 who wins popularity on a supporter 11 and is attached between a collar 15 and 15 as the operation plate 30 is shown in drawing 9 (a) and (b) The engagement sections 36 by which crookedness formation was carried out are consisted of by collapse Itabe 33 it was connected [ collapse / Itabe / 31 / wearing ] through the resin hinge 32 constituted by thin meat by fabricating, the carrier basalia section 34 it was connected [ carrier / Itabe / 33 / this / collapse ] through the resin hinge 35, and the point of the carrier basalia section 34. As the natural condition after shaping of this operation plate 30 is abbreviation plate-like as the elastic force of those resin hinges 32 and 35 shows to drawing 9 (b), and shown in drawing 9 (a), in case it attaches It can attach by resisting the elasticity, bending the resin hinge 32, equipping a supporter 11 with wearing Itabe 31, installing a cushion pad 6 in the frame section 5, and carrying out receipt arrangement into the cavity 10, where the resin hinge 35 is bent further.

[0031] While according to such a configuration the same operation as drawing 8 is acquired functionally and being able to acquire support reinforcement and rigidity certainly and easily with the supporter 11 made from a steel plate, since the operation plate 30 which is a functional part consists of the synthetic-resin formation article of an easy configuration by abbreviation plate-like, it can be easily manufactured in low cost.

[0032] In addition, although the above-mentioned operation gestalt showed the example which constituted the cross member 8 as the frame section 5 and another member, and fixed by the rivet 9, the bolt, welding, etc., case [ like all of the cross members 8, or the example of drawing 9 ], the supporter 11 which is the part can also be considered as the configuration which the frame section 5 and really fabricated.

[0033]  
[Effect of the Invention] According to the sheet for automobiles of this invention, in the pars intermedia of the cross direction of the frame section of a seat cushion, a cross member is applied in the breadth direction of a seat cushion as mentioned above. Delivery, Since the collapse section which lodges caudad was prepared when it extended in the cross member towards the backward upper part from the front end of a lower supporter and the thrust from the upper part acted on it If comfortableness does not get worse and crew's bottom part tends to move ahead at the time of a sudden slowdown when crew sits down on a seat cushion, thrust acts from the upper part and the collapse section lodges caudad Since a bottom part is caught in the back end section of the collapse section, and it can control certainly that crew moves ahead, and it

pushes up and neither the device nor the driving means is established independently, it can constitute simply [ a configuration ], lightweight, and cheaply.

[0034] Moreover, if the collapse section is divided in the breadth direction of a seat cushion by the slit prolonged in a cross direction at plurality, since the collapse section can lodge smoothly for every part, when crew sits down, a feeling of a fit to crew's femoral region improves.

[0035] Moreover, if the receiver which turns caudad and is prolonged the back from the back end section of the collapse section is installed, since the bottom part of the crew who is going to move ahead at the time of a sudden slowdown will be caught in a receiver in a field, front migration of a bottom part can be controlled stably.

[0036] Moreover, if the soffit section of a receiver forms a stopper means to prevent moving ahead from a predetermined location in the back of a supporter, the bottom part by the receiver catches, and an operation is stabilized further and can control front migration of a bottom part much more stably.

[0037] Moreover, if it constitutes so that striking energy may be absorbed according to deformation when the impact more than predetermined acts the collapse section, the impact over a bottom part can be eased, preventing front migration of a bottom part.

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[Translation done.]

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## DESCRIPTION OF DRAWINGS

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[Brief Description of the Drawings]

[Drawing 1] It is the decomposition perspective view of 1 operation gestalt of the sheet for automobiles of this invention.

[Drawing 2] It is the vertical section side elevation of this operation gestalt.

[Drawing 3] The cross member of this operation gestalt is shown, (a) is an operation explanatory view at the time of taking a seat, and (b) is an operation explanatory view at the time of a sudden slowdown.

[Drawing 4] It is the partial perspective view of the 1st modification of the cross member of this operation gestalt.

[Drawing 5] It is the partial perspective view of the 2nd modification of the cross member of this operation gestalt.

[Drawing 6] It is the partial perspective view of the 3rd modification of the cross member of this operation gestalt.

[Drawing 7] The 4th modification of the cross member of this operation gestalt is shown, and (a) is [ drawing of longitudinal section of the condition at the time of taking a seat and (c of drawing of longitudinal section of an installation condition and (b)) ] drawings of longitudinal section of the condition at the time of a sudden slowdown.

[Drawing 8] It is drawing of longitudinal section of the 5th modification of the cross member of this operation gestalt.

[Drawing 9] The 6th modification of the cross member of this operation gestalt is shown, (a) is drawing of longitudinal section of an installation condition, and (b) is the sectional view of the expansion condition of a deflection plate.

[Drawing 10] It is the explanatory view of the behavior of the crew at the time of the sudden slowdown in the sheet for automobiles.

[Drawing 11] It is the explanatory view of a means which prevents front migration of the crew at the time of a sudden slowdown.

[Drawing 12] It is the explanatory view of the sheet for automobiles which established a means to prevent front migration of the crew at the time of the sudden slowdown of the conventional example of operation.

[Description of Notations]

1 Seat Cushion

5 Frame Section

8 Cross Member

11 Supporter

13 Collapse Section

14 Receiver

21 Slit

23 Flection (Impact-absorbing Means)

24 Stopper Piece (Stopper Means)

[Translation done.]

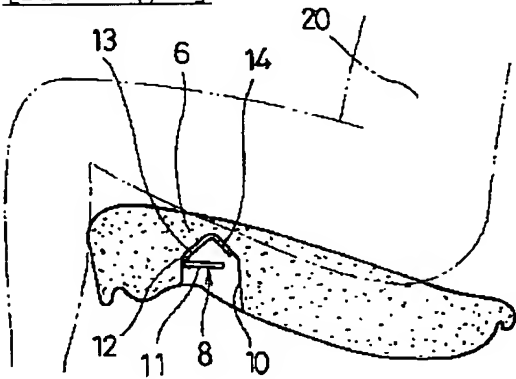
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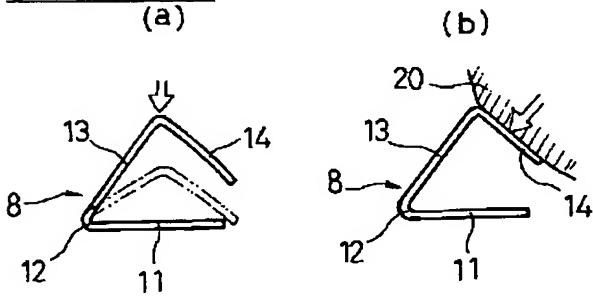
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DRAWINGS

[Drawing 2]

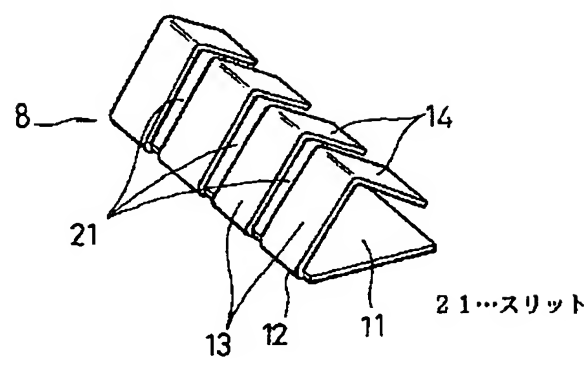


[Drawing 3]

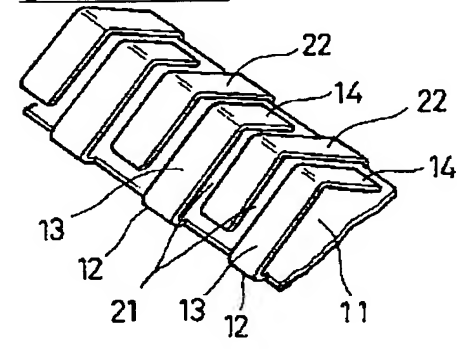


[Drawing 4]

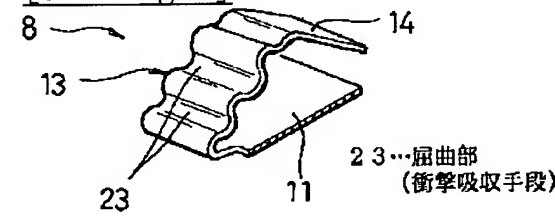




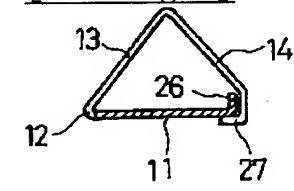
[Drawing 5]



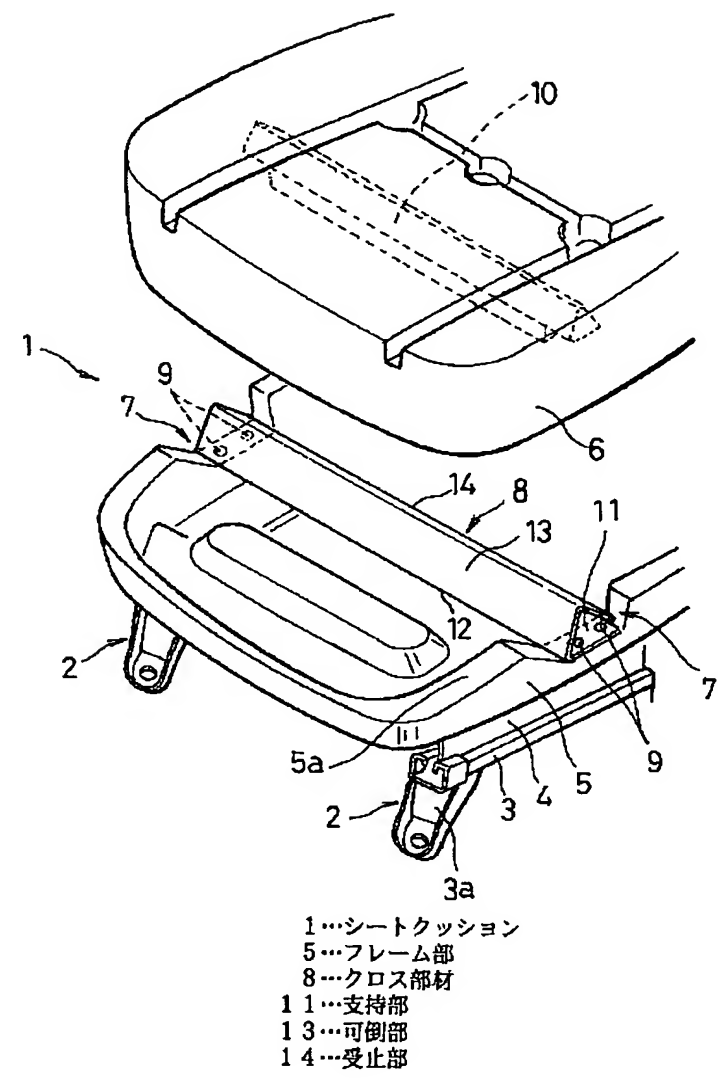
[Drawing 6]



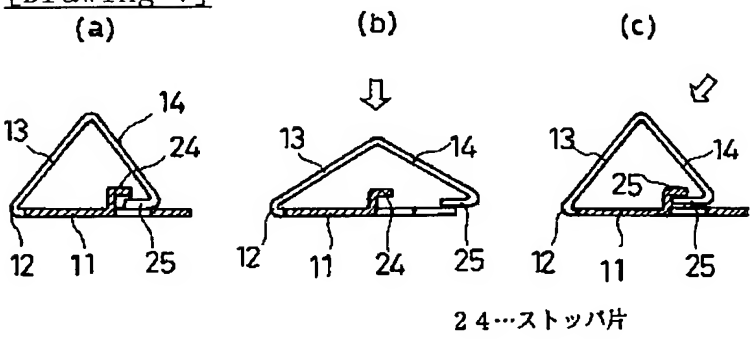
[Drawing 8]



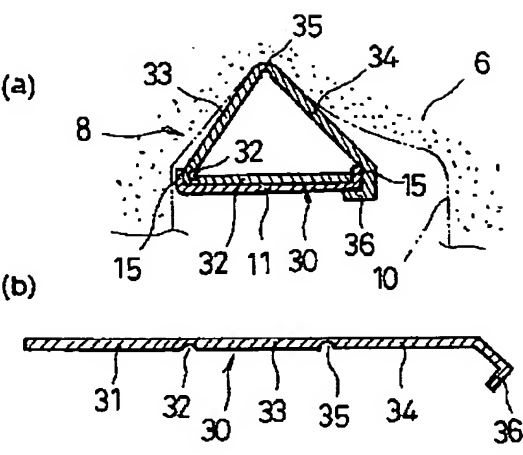
[Drawing 1]



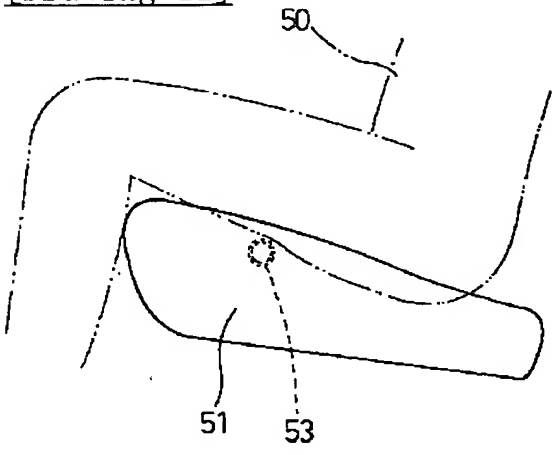
[Drawing 7]  
(a)



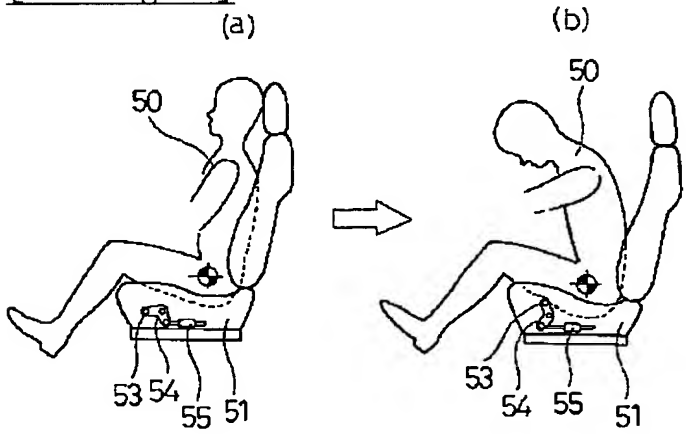
[Drawing 9]



[Drawing 11]



[Drawing 12]

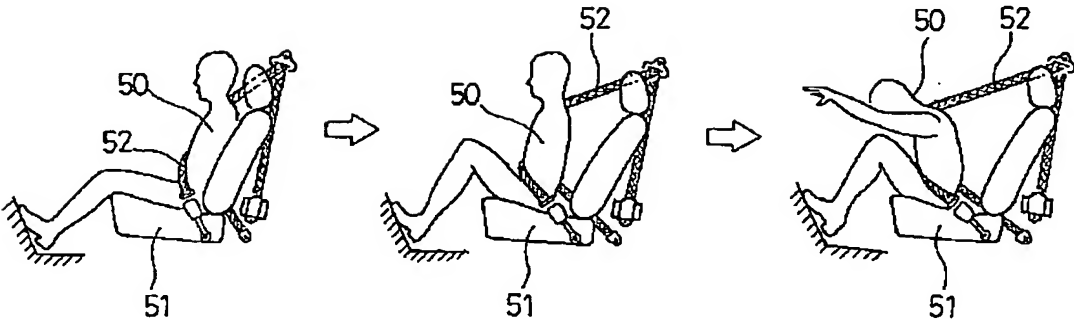


[Drawing 10]

(a)

(b)

(c)



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